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(54) Speedometer for cycles and mopeds

(57) Speedometer for cycles and mopeds in which the measurement is effected by means of a reed switch (6) secured to a wheel fork (5) and a number of permanent magnets (4) moulded into an annular holder (3), secured to the spokes of the wheel by means of a part inside the wheel fastened to the holder (3), see Figure 3. The permanent magnets (4) are uniformly spaced and positioned at the same radii from the hub of the wheel. The holder (3) can be of synthetic material.

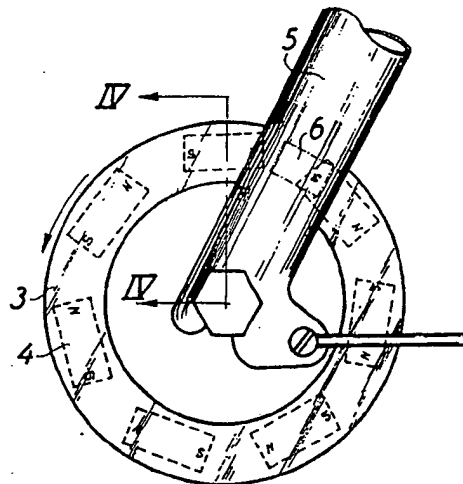
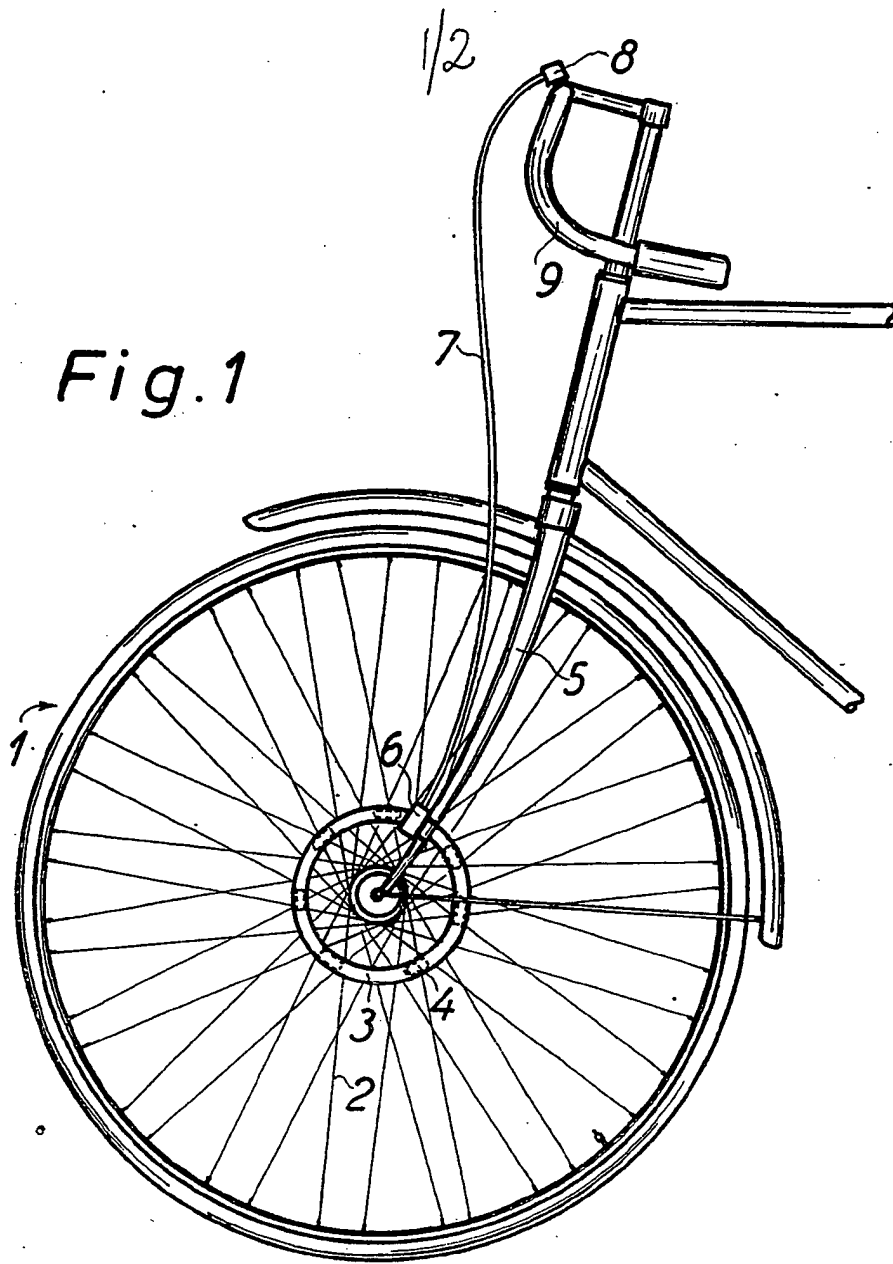
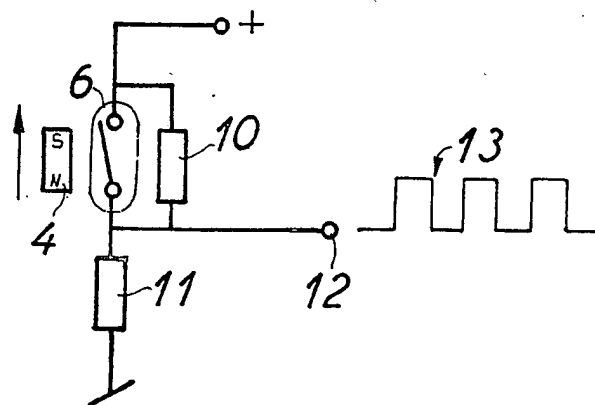


Fig. 3



*Fig. 2*



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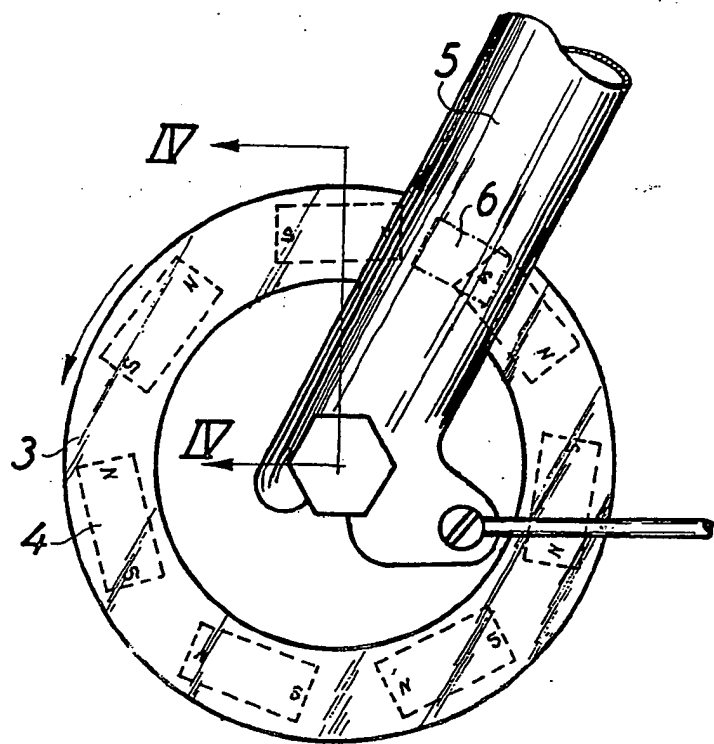


Fig. 3

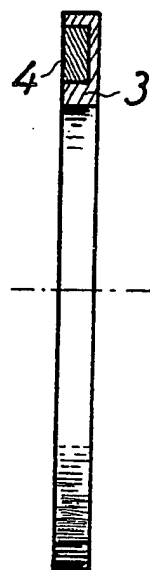


Fig. 4

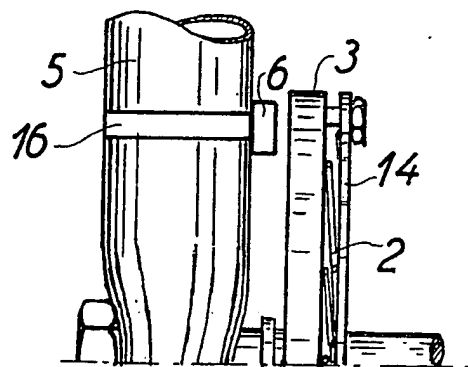


Fig. 5

## SPECIFICATION

### Speedometer for cycles and mopeds

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This invention relates to a speedometer, especially for cycles and mopeds, and of the type wherein the measurement is effected by means of a reed relay secured to a stationary part of said cycle or moped, and a number of permanent magnets secured to one of its wheels, the magnets thus moving past the reed relay during the rotation of the wheel.

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U.S. patent no. 3,898,563 describes a speedometer of the above type, wherein the permanent magnets are secured to the spokes of the wheel. This magnet arrangement has certain disadvantages, one of these being that the mounting of the magnets can be difficult, another being that it is difficult to position the magnets at precise mutual intervals. Furthermore the number of magnets is determined to a certain degree by the spokes.

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The object of this invention is to provide a speedometer which is not encumbered with the above-mentioned disadvantages.

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This object is achieved by moulding the permanent magnets into an annular holder at uniform intervals, and by providing said holder with a securing means by which it can be fastened to the spokes at the outer side of the wheel. This arrangement makes it possible to position a suitable and partly arbitrary number of magnets at precise mutual intervals and, furthermore, makes the mounting or replacement of a set of magnets a very simple matter.

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In accordance with Claim 2, the invention can be characterized by the holder being secured by means of a two-part ring, said ring being arranged to be secured together with the annular holder around the spokes of the wheel. This method of mounting is most advantageous.

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Finally, the invention can be characterized by said annular holder and said two-part ring being manufactured of synthetic material. This material is particularly suitable for the purpose.

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The invention will now be described in more detail with reference to the accompanying drawings, where

*Figure 1* shows a speedometer according to this invention mounted on a bicycle,

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*Figure 2* shows a schematic arrangement of the speedometer pick-up,

*Figure 3* shows the positioning of the permanent magnets,

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*Figure 4* shows a section along the line IV-IV in *Figure 3*, and

*Figure 5* shows the securing arrangement of the magnet holder.

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*Figure 1* shows the speedometer according to this invention fitted to a bicycle. On the spokes 2 of the front wheel 1 is secured an annular disc 3, into which are moulded seven permanent magnets 4. On the front forks 5 is fastened a pick-up 6, said pick-up comprising a reed relay connected by a lead 7 to an instrument 8 on the handlebars 9.

arrangement of the speedometer pick-up, a reed relay 6 is positioned close enough to the moving magnets 4 to enable the magnetic field of said magnets to close the reed relay momentarily during their rotation past said relay. The reed relay is connected to a source of current, for example an ordinary 4.5 volt dry battery, and two resistors 10 and 11, the signals generated at the output 12 thus having the pulse shape 13. The output 12 is connected to a conventional measuring circuit contained within the instrument housing 8.

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The precise positioning of the magnets 4 in the annular disc 3 is shown in *Figures 3* and 4.

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With reference to *Figure 5*, the annular disc 3 is fastened firmly around the spokes 2 of the wheel by means of an associated part 14, said associated part 14 consisting of two half parts which are screwed together with the annular disc 3. The pick-up 6 is fastened to the front fork 5 by means of an ordinary securing clip 15, but can also be mounted on a baseplate secured to the wheel's hub bolt.

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The invention is not limited to the embodiment having the seven permanent magnets shown in the example. This number of magnets is suitable for a 26" wheel. A greater or smaller number of magnets may be used with wheels of larger or smaller diameters respectively. The number of permanent magnets used in the preferred embodiment has been chosen to produce a registration of 1 kph corresponding to approx. 1 pulse per second. It will be obvious that the measuring pulses for the speedometer can also be used to generate pulses for a kilometer counter placed in the instrument housing 8.

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## CLAIMS

1. Speedometer, especially for cycles and mopeds, of the type by which the measurement is effected by means of a reed relay secured to a stationary part of the vehicle and a number of permanent magnets fastened to one of its wheels, said magnets being arranged to move past the reed relay during the rotation of the wheel, characterized by the permanent magnets (4) being moulded into an annular holder (3) at uniform intervals and the holder (3) being provided with securing means (14) enabling said holder (3) to be fastened to the spokes (2) at the outer side of the wheel (1).

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2. Speedometer in accordance with claim 1, characterized by the holder (3) being secured by means of a two-part ring (14) arranged to be fastened together with the annular holder (3) around the spokes (2) of the wheel (1).

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3. Speedometer in accordance with claims 1 or 2, characterized by the annular holder (3) and the two-part ring (14) being produced from synthetic material.

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4. A speedometer substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.